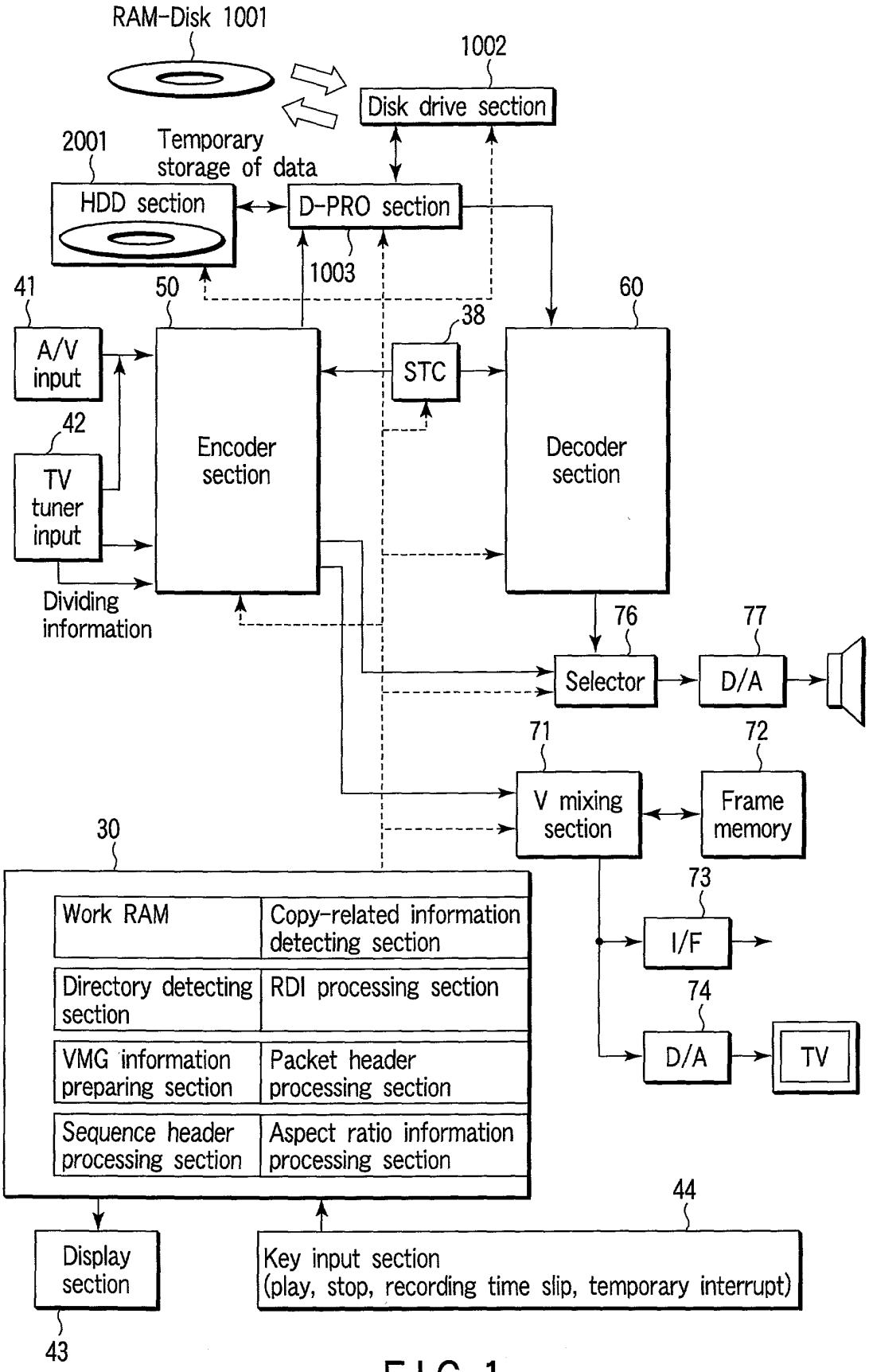
RAM-Disk 1001
1002
Disk drive section
2001
Temporary storage of data
HDD section
D-PRO section
1003
41
50
60
38
A/V input
STC
42
TV tuner input
Encoder section
Decoder section
Dividing information
76
77
Selector
D/A
71
72
V mixing section
Frame memory
30
73
I/F
74
D/A
TV
Work RAM
Copy-related information detecting section
Directory detecting section
RDI processing section
VMG information preparing section
Packet header processing section
Sequence header processing section
Aspect ratio information processing section
44
Display section
Key input section
(play, stop, recording time slip, temporary interrupt)
43

FIG. 1

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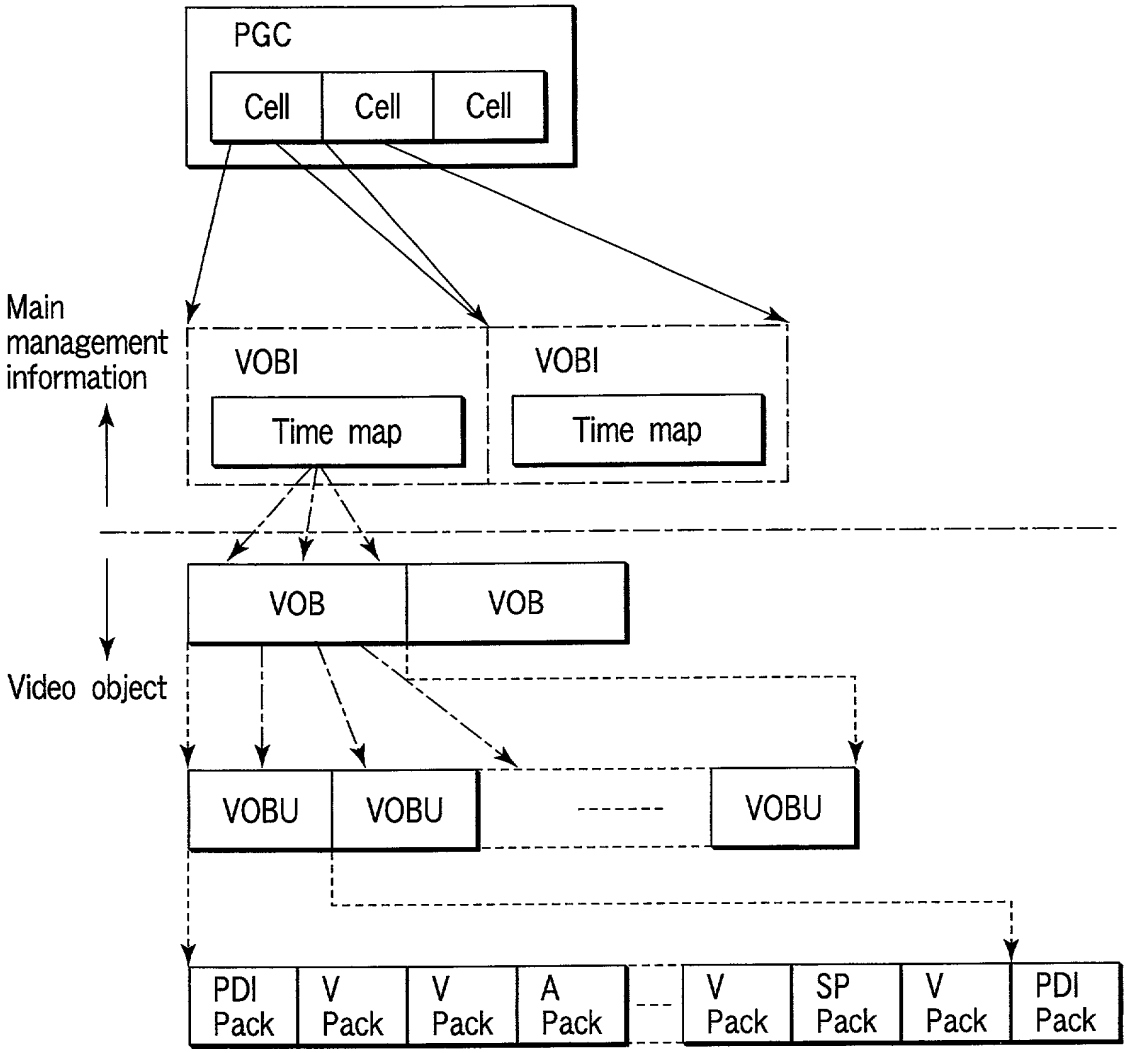

FIG. 2

FIG. 3A

RDI_GI	Real time data and general information
DCI_CCI	Display control information and copy control information
MNFI	Manufacturer information

FIG. 3B

Reserved	
VOBU_S_RTM	VOBU presentation start time
Reserved	
VOBU_REC_TM	VOBU recording time

FIG. 3C

DCI : display control information			
Aspect ratio 4b	Subtitling mode 2b	Reserved 1b	Film camera mode 1b

FIG. 3D

CCI : copy control information			
CGMS 2b	APSTB 2b	Source 1b	Reserved 3b

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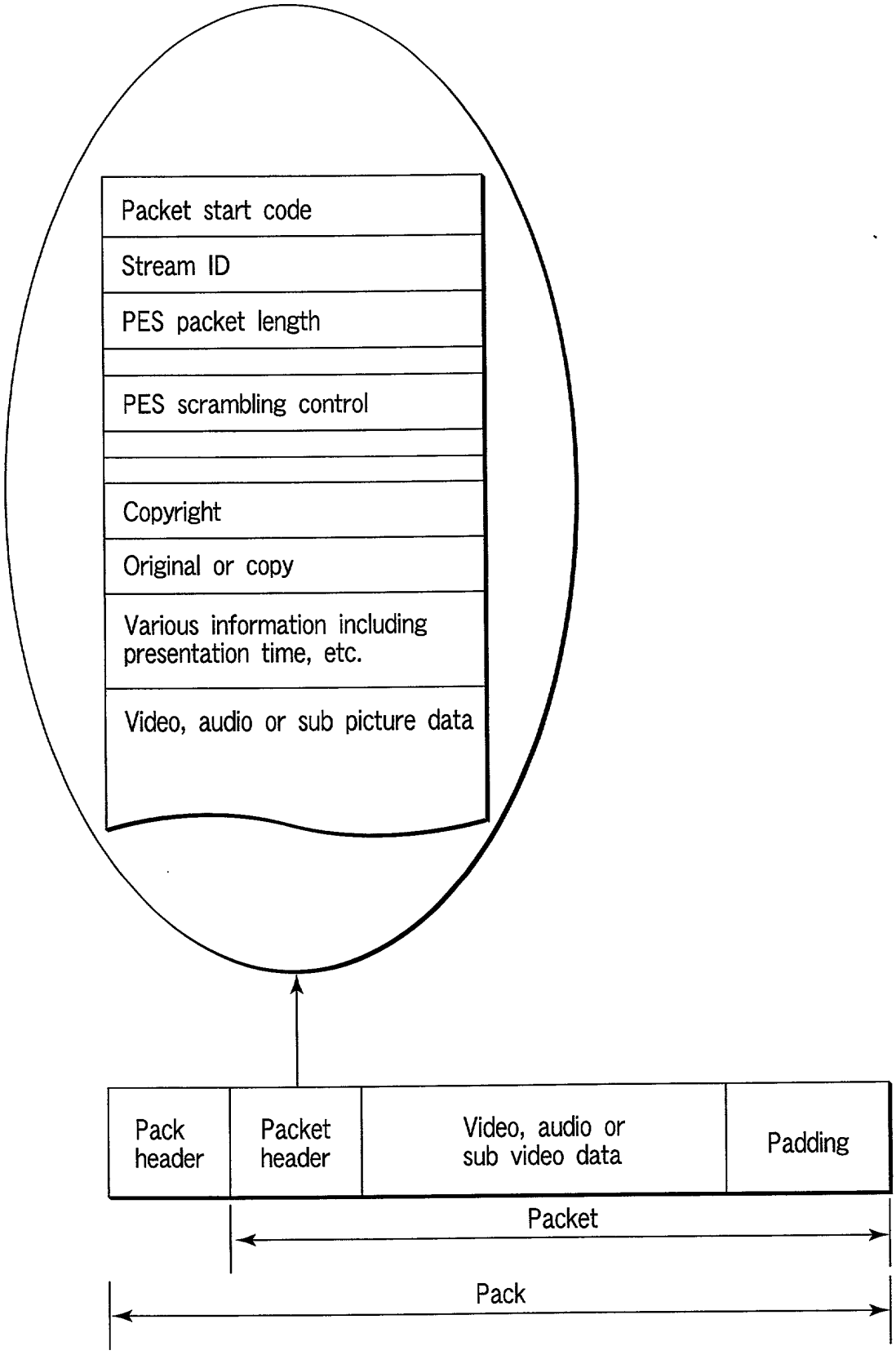

FIG. 4

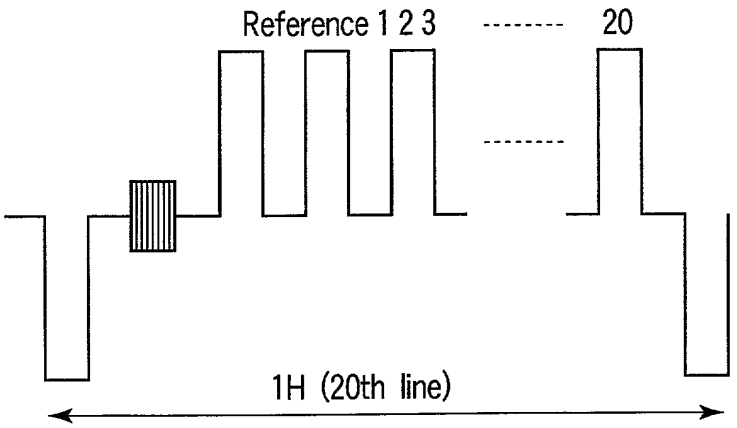

FIG. 5A

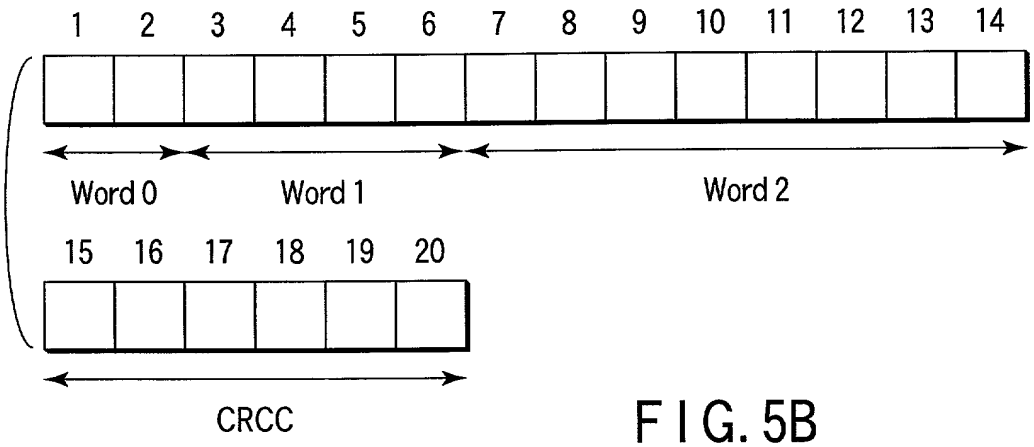

FIG. 5B

CGMS 7, 8	Definition	Recording rule
0, 0	Copying authorized unconditionally	CGMS of recording medium is recorded as (0, 0)
0, 1	Not in use	···
1, 0	Copying authorized in a generation	CGMS of recording medium is recorded as (1, 1)
1, 1	Copying prohibited	Nothing is recorded

FIG. 5C

Word 0	Definition
0, 0	No signal and information for image with aspect ratio of 4 : 3
0, 1	Squeeze signal for image with aspect ratio of 16 : 9
1, 0	Letter box signal with aspect ratio of 14 : 3
1, 1	Not in use at the moment

FIG. 5D

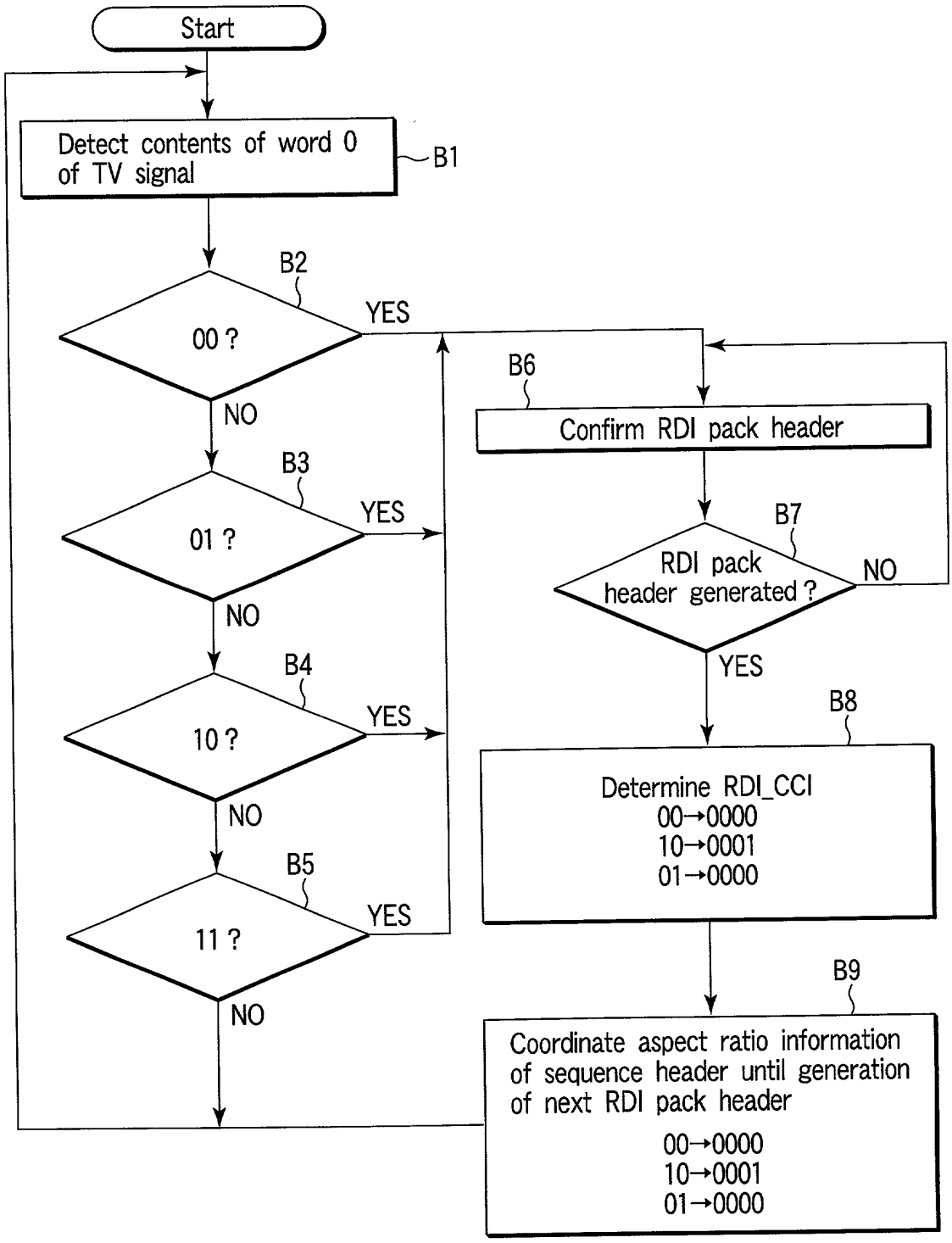
Start
Detect contents of word 0 of TV signal
B1
B2
00 ?
YES
NO
B3
01 ?
YES
NO
B4
10 ?
YES
NO
B5
11 ?
YES
NO
B6
Confirm RDI pack header
B7
RDI pack header generated ?
NO
YES
B8
Determine RDI_CCI
00→0000
10→0001
01→0000
B9
Coordinate aspect ratio information of sequence header until generation of next RDI pack header
00→0000
10→0001
01→0000

FIG. 6

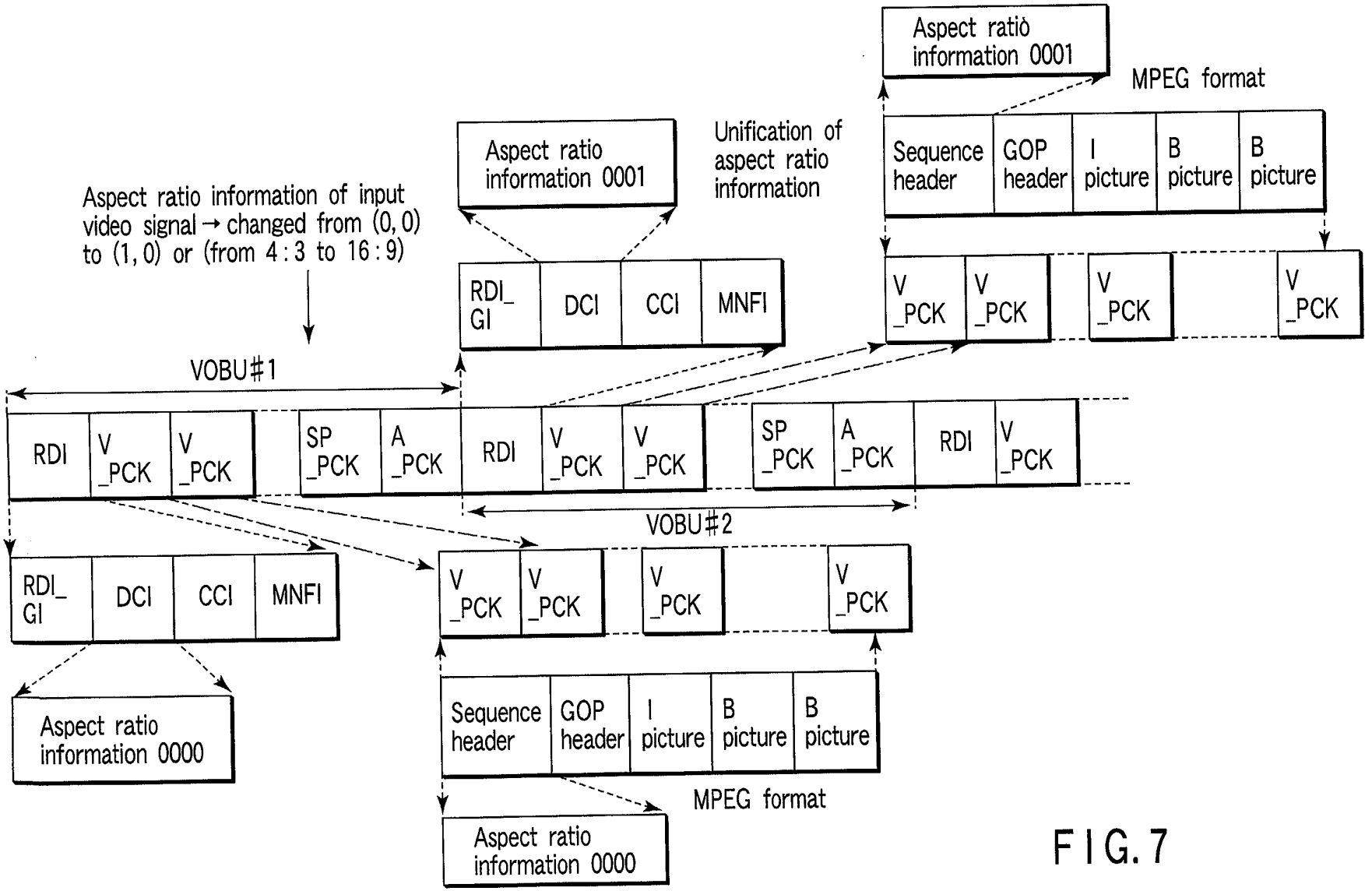
Aspect ratio information 0001
MPEG format
Unification of aspect ratio information
Aspect ratio information 0001
Aspect ratio information of input video signal → changed from (0, 0) to (1, 0) or (from 4 : 3 to 16 : 9)
Sequence header
GOP header
I picture
B picture
B picture
RDI_ GI
DCI
CCI
MNFI
V _PCK
VOBU#1
RDI
SP _PCK
A _PCK
VOBU#2
Aspect ratio information 0000
MPEG format
Aspect ratio information 0000

FIG. 7

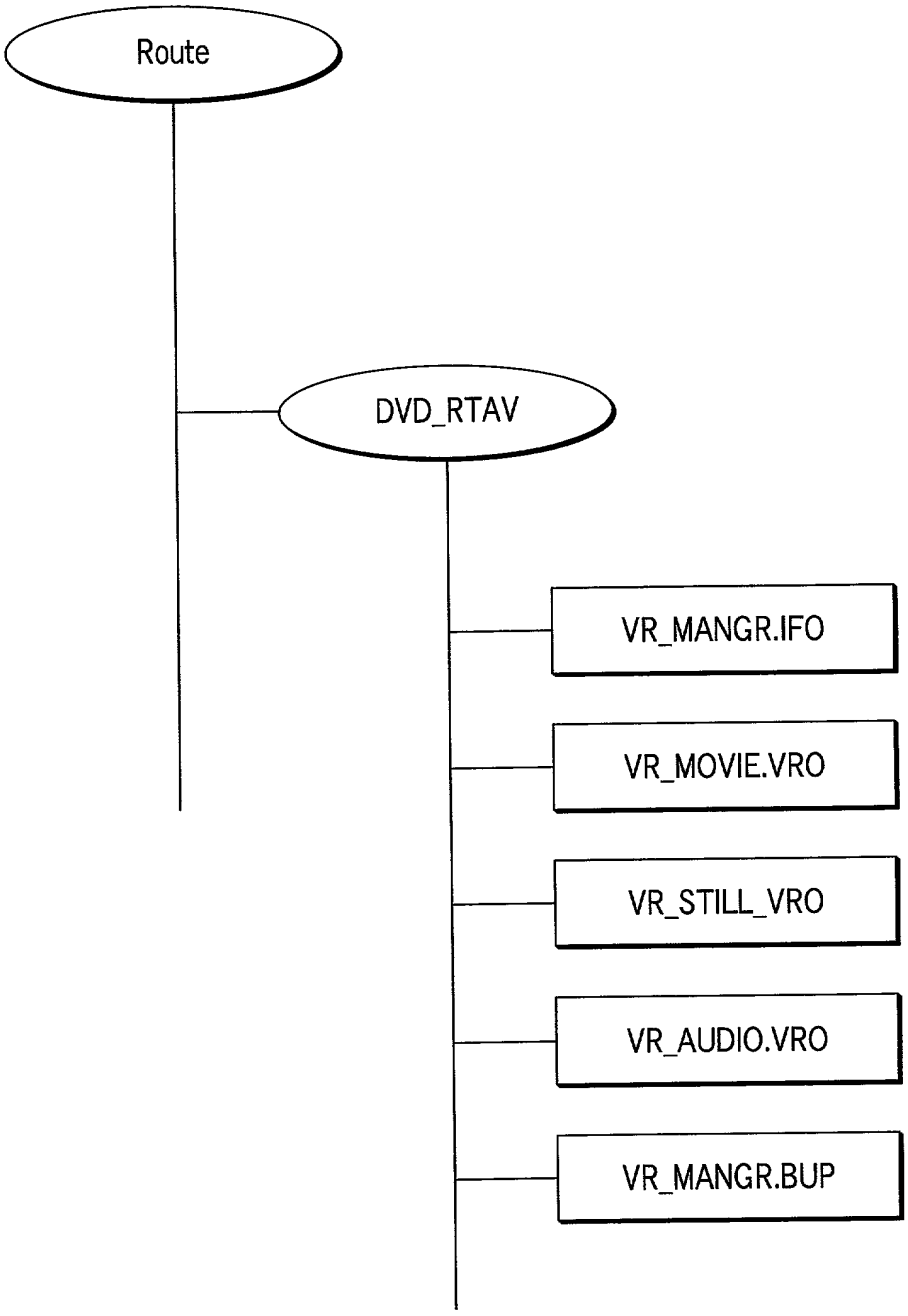
Route
DVD_RTAV
VR_MANGR.IFO
VR_MOVIE.VRO
VR_STILL_VRO
VR_AUDIO.VRO
VR_MANGR.BUP

FIG. 8

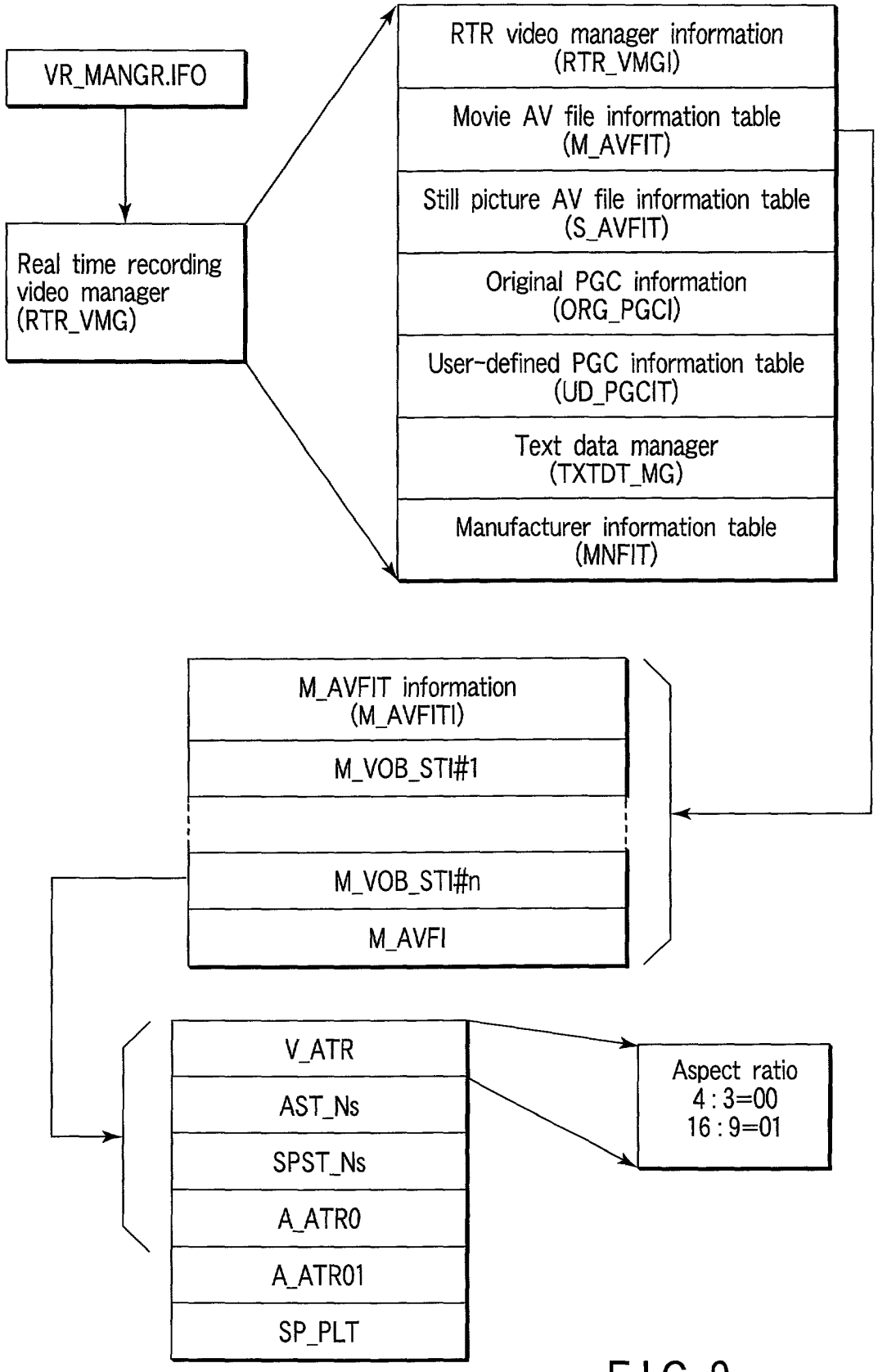
VR_MANGR.IFO
Real time recording video manager (RTR_VMG)
RTR video manager information (RTR_VMGI)
Movie AV file information table (M_AVFIT)
Still picture AV file information table (S_AVFIT)
Original PGC information (ORG_PGCI)
User-defined PGC information table (UD_PGCIT)
Text data manager (TXTDT_MG)
Manufacturer information table (MNFIT)
M_AVFIT information (M_AVFITI)
M_VOB_STI#1
M_VOB_STI#n
M_AVFI
V_ATR
AST_Ns
SPST_Ns
A_ATR0
A_ATR01
SP_PLT
Aspect ratio
4 : 3=00
16 : 9=01

FIG. 9

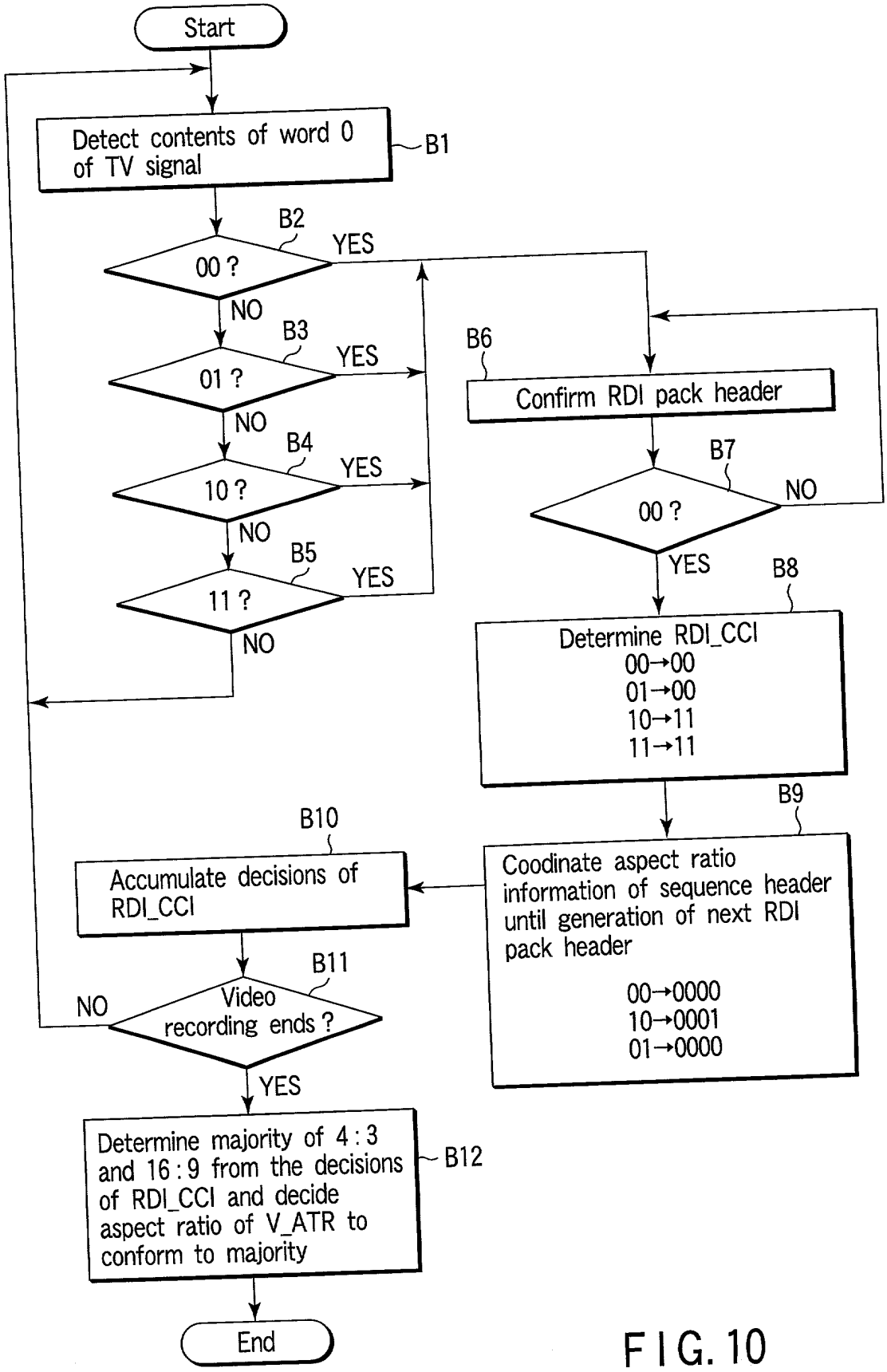
Start
Detect contents of word 0 of TV signal
B1
B2
00 ?
YES
NO
B3
01 ?
YES
NO
B4
10 ?
YES
NO
B5
11 ?
YES
NO
B6
Confirm RDI pack header
B7
00 ?
NO
YES
B8
Determine RDI_CCI
00→00
01→00
10→11
11→11
B9
Coodinate aspect ratio information of sequence header until generation of next RDI pack header
00→0000
10→0001
01→0000
B10
Accumulate decisions of RDI_CCI
B11
Video recording ends ?
NO
YES
Determine majority of 4 : 3 and 16 : 9 from the decisions of RDI_CCI and decide aspect ratio of V_ATR to conform to majority
B12
End

FIG. 10